

INTERFERENCE

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Test een twee, test een twee, whistle, puff puff, test - yes, this is indeed a little test. For several years now Europe has been without a regular English language pirate magazine (please correct me if I'm wrong!). There is of course Pirate Connection from Sweden, but PC can hardly be said to be a regular magazine these days! «Interference» is not intended to be an attack on or a substitute for Pirate Connection or any other pirate magazine that may exist. But we felt that there was a need for a regular pirate bulletin, and a bulletin that is *not primarily based on the Internet*. There are numerous Internet-based pirate bulletins around, but we're into *radio*, we're not Internet-nerds, right? And if there is - contrary to my belief - more English language pirate zines out there, then so what? Our

philosophy is: the more pirate zines the better! We need more than just one or two - for the sake of diversity, that is.

Radio Pandora

QSL



THE HOTTEST SOUND AROUND

The plans are to make this a bi-monthly effort, just like in the good old days, when Pirate Chat and Pirate Connection ruled the ground. This first issue is the work of James Maxwell and myself, but future issues will hopefully see the contributions of some more people. We intend to send this first little «test-magazine» to a number of known pirate freaks (and some who are just freaks), and we hope that at least some of you are interested in contributing to the next edition. But feel free not to contribute - just because we've sent this zine to *you*, that doesn't mean that we demand the total devotion from your side. HI! This is an invitation to join a little free radio effort, and if no-one wants to come along, it's OK - mind you, if this effort comes to nothing, it just means much less work for us. HI.

We will try to keep the production costs as low as possible, so Interference may not look as nifty and professional as e.g. Pirate Connection and Pirate Chat. We'll follow the same philosophy as The Wave (another great magazine from the past) - the magazine as such is free, but we must ask you, the reader, to cover the postage costs. An IRC per issue should therefore be sufficient.

The next issue will be out at the end of January next year, and I'm sure there will be much to report from the Christmas season. If anyone who wants to contribute to subsequent issues feel that things in this test-zine should be changed, such as title, lay-out, content or whatever - feel free to say so.
73, Q R, Emerson

THIS IS INTERFERENCE MAGAZINE - A PIRATE RADIO PUBLICATION
ISSUED IN EUROPE.

WE'RE TRYING TO KEEP A BI-MONTHLY SCHEDULE.

THE (contemporary) ADDRESS IS: C/O 64 Brighton Road, Leicester, LE5 0HA,
ENGLAND.

YOU CAN ALSO CONTACT US VIA E-MAIL: qremerson@hotmail.com

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THE LOG

Yes, this new magazine will naturally have a log-section. But it will be different from most other log lists seen in pirate publications in the past - and it will be different from the lists seen in e.g. SRS News, not because they are bad or don't have an important mission, *but because an alternative is needed*. The log-section in «Interference» will be based more or less on the concept seen in FRMSEM - and in the now *late* Pirate Pages... That is, it will be a station-by-station summary of recent activity, showing what one particular station has been up to. The emphasis will be on the *programme contents* - and on *general comments about the various stations*. This first log-section will be very limited, as I (Q.R. Emerson) have only been able to listen two weekends this autumn (and James is too lazy to have a little look into his log book). The main reason for this is that my current QTH is very unsuitable for pirate listening - so the DXing has to wait till I get to my other QTH in the countryside. My antennas are hanging there, just waiting for me to return home... Sigh...

SEPTEMBER 1998

Armada 1637.9 kHz
Sat 12th, 2325 UTC. I haven't heard this station for a long, long time - truly a nice surprise! Excellent modulation on this one.

Britain's Better Music Station 5834 kHz
Sat 12th, 2251 UTC. Robbie Duke with one of his listenable programmes. Played Jackson 5 and the 4 Tops, among others.

Caroline 1645.7 kHz
Fri 11th, 2115 UTC. Played «Moonlight Shadow», said hello to Anne. de Graaf and said he'd absoluut niet retour komen. So that! It is interesting that he insists on calling himself «the Powerstation» - because he isn't a bit strong.

Graaf van Luxemburg 1636 kHz
Fri 11th, 2118 UTC. Played the most marvellous song I'd ever heard: «Papa trinkt beer, mama is ziek!» The telephone kept ringing in the background, and the operator thought that perhaps it was Derck.

Korak 3926.8 kHz
Sat 12th, 2244 UTC. The usual format. Willem and Sandra were both in the studio.

Laser Hot Hits 3930 kHz
Fri 11th, 2230 UTC. Noted.

Mario 1645 kHz
Fri 11th, 2103 UTC. Played «Camouflage» (our big favourite) and said hello to Derck Taylor.
Sat 12th, 2319 UTC. Oooh, so much feedback! Don't they ever wear headphones and monitor their

audio, these crazy Dutch people? Said «Good vor de Bakker» all the time. What is it that is so good for the baker? They say that all the time, these weirdos!

Monte Carlo 1640.3v
Sat 12th, 2330 UTC. QSO - en tot een volgende keer!

Noordzee 1636.1 kHz
Sat 12th, 2148 UTC. «Emely, come back to me!» was noted. This fine pirate often makes some long and listenable broadcasts.

Radio Nordsee 3900.6 kHz
Sat 12th, 2122 UTC. Dr. Tim was on the microphone! I'm 100% sure - I'd recognize his voice anywhere! Played «99 Luftballongs». More people in the studio as well. Party-Stimmung!

Sallandse Boer 1645.6 kHz
Fri 11th, 2213 UTC. Report for Studio 4.

Subterranean Sounds 3920 kHz
Fri 11th, 2324 UTC. List of places that pirates have broadcast from - continued from last time (with contributions from Harry the Cat and a chap in Norway). XFM News. Nice music and interesting spoken content.

Tom's Music Radio 3919.5 kHz
Sat 12th, 2124 UTC. Noted. (Quite a surprise really - was this in fact an old tape? I wish I'd listened a bit more carefully, because the signal was excellent.)

Torpedojager 1639.6 kHz
Sat 12th, 2330 UTC. QSO.

Toulouse (B) 1638.2 kHz
Sat 12th, 2217 UTC. Incredible - I haven't heard this chap for years!

UCB 1593 kHz (because UCB *is* a pirate, isn't it?)
Fri 11th, 2216 UTC. Nice folk/c&w/pop format. It is strange, but UCB can in fact be quite OK to listen to.

WBCQ - The Planet 7415 kHz
Sun 13th, 0115 UTC. Yes, I know, I know! This is not a pirate, but surely it does have some strong pirate connections! (Though the nerds in the FRN «Grapevine» would probably not agree...) Weak signal here, but I could just barely hear a chap making a speech about pay-television. He shouted a lot and sounded just like the religious nuts (Bro Stair and the gang) though the topic was slightly different.

Zwarte Spin 1638 kHz
Sat 12th, 2247 UTC. Very poor modulation, as usual. Laughs a lot! (He's often called «Lachende Spin» - not a bad name.)

OCTOBER 1998

Barones 1636 kHz
Fri 16th, 2150 UTC. Met een programma «voor Jan en alleman»... (Am I not clever understanding all those Dutch expressions?)

Benelux 7480 kHz
Sun 18th, 0830 UTC. Oldies format, good signal.

Blue Star 6184.2 kHz
Sat 17th, 0834 UTC. Tested a new antenna.

Britain's Better Music Station 51 and 48m
Sat 17th, 2258 UTC, 5834 kHz.
 Gary Stevens with another highly original and interesting programme. Played ancient radio recordings (from an LP called «Radio Days»). One of the tunes played was particularly funny: it was called «In 1992» and went on about all those wonderful things that would be possible in 1992 (mind you, this tune was recorded long, long ago) - one thing that you'd be able to do in 1992 was to get to Spain in an hour and a half. Yep.
Sun 18th, 0820 UTC, 6198.8 kHz.
 Repeat of last night's programme.

The Farmers 6284 kHz.
Sun 11th, 1350 UTC. - Received very well on my tiny Sony portable radio with just the small telescopic antenna! I heard a telephone-call from the Farmers' fan club, i.e. Martin from Germany...

Flux 6280 kHz.
Sat 17th, 1205 UTC. Wonderful audio! And the DJ sounded fairly professional as well!

Oscar 6259 kHz.
Sun 18th, 0800 UTC. «Ik vraag om verbinding en luister met aandacht» - i.e. «CQ» in Dutch!

Pandora 6300.5 kHz.
Sun 18th, 0915 UTC. The usual weird style of presentation and the usual excellent selection of music.

Mentioned new commercial stations to come on air in the Netherlands as well as a few other radio related items. Radio Pandora is no doubt my favourite Sunday morning station at the moment!

Partial India Radio 6955 USB.
Sat 17th, 0106 UTC. Weak signal. All I could hear was a heavily accented voice and someone mentioning the FRN Grapevine. Great station name, anyway!

Pelikaan 1636.1 kHz.
Fri 16th, 2205 UTC. QSO.

Scottish Fishermen off channel - 1640 USB.
Fri 16th, 2210 UTC. Surely they aren't supposed to be here? (I can hear you say: «well, who cares?»)

Studio 4 1637.8 kHz.
Fri 16th, 2216 UTC. QSO. Played a German jingle.

Subterranean Sounds 3945.1 kHz.
Fri 16th, 2223 UTC. Usual alternative rock «format». But he also played a record by Bruce Springsteen! I was amazed! Gave Stereolab a good plug, as so often before. Mentioned a film to be shown on TV that night. Billo-jingle at the end, as always. Nice little programme.

Transatlantic Radio 5796.8 kHz.
Sat 17th, 2048 UTC. Oooh! So awfully overmodulated!

WBCQ - The Planet 7415 kHz.
Sat 17th, 0000 UTC. Alan Weiner and his girlfriend (chr, Elaine, isn't it?) read out listeners' letters and played *one* record in one hour... He sure is a talkative man, this Mr. Weiner. By the way, does anyone know what that packet radio signal is, coming on every now and again on 7415 (also heard at daytime here)?

 If you decide to send in logs to this section (and PLEASE DO!), then feel free not to include every single station or log that you have. Some pirate listeners receive an awful lot of stations over two months, and if they were to write down all those logs - complete with programme comments - and send them off to «Interference», I'm sure that would mean quite a lot of work. So if you've heard an immense lot of stations, it is fine if you just include those that you consider most interesting or worth mentioning. Or if you have the time: include it all. No problem.

SOME INTERESTING IDEAS I'VE HAD RECENTLY

Written by that notorious James Maxwell

Is it possible to turn on - and eventually switch off - a transmitter by means of a mobile phone? That would be extremely useful for the pirate who is not able to broadcast at home and who doesn't want to stay out in a forest or whatever it may be late at night in order to do a broadcast on, say 76m. I can hear you shouting: USE A TIME SWITCH! But - hey - this is not a good idea. What if the frequency you've pre-set the transmitter to operate on is occupied when your transmitter suddenly and without your control suddenly switches on? The alternative is of course a mobile phone-link. Is it possible? Comments, please?

Many SW pirates these days complain about lack of listeners. Have anyone tried to grab hold of the listeners where they can be found? I don't know if anyone has noticed, but a prominent Euro-pirate has recently started announcing his programmes 10-15 minutes in advance on 6670 kHz (You probably all know what sort of frequency that is...). I don't know if this is a wise thing to do (from a security viewpoint) or if it actually attracts any listeners. Any comments?

NEWS IN BRIEF

Compiled by Q.R. Emerson

I have, for several reasons, not been able to follow the pirate scene very closely recently, so please do excuse me if I omit something important here. It's probably the best if someone who's listening regularly takes care of this section of the magazine. Any volunteers?

Radio Amazonia

This highly original German pirate sent me a QSL for a recent broadcast via IRRS. The programme, I recall, consisted of folk music, punk and revolutionary songs! The theme-tune was a strange version of «Mr. Nilsson-polka», a tune which is of course well known from the telly. The programme had previously been relayed via Anteaer Radio in North America. DJ Mr. Téquila clearly puts his soul into his programmes - the music is highly original, and according to himself he sometimes include some political and similar comments. The studio is fairly basic as he doesn't have a mixer. But as far as I can see, that doesn't matter at all - as long as his programmes are as interesting as they are! I really hope to hear you again soon, Mr. Téquila - you've really made me believe in free radio again! Address: c/o SRS.

The Anarchist

Are you looking for some good schematics for a decent shortwave or mediumwave transmitter? Well, a very interesting design - named «The Anarchist» - appeared on the Free Radio Network (American Internet-site) recently. The man behind the design is (unless he's ripped it off a ham-publication or something) the operator of Radio Anarchy. The TX is capable of some 10 watts, and it's fully transistorized. The output transistor is the IRF-510, which is said to be common (I haven't been able to check availability here in Europe). The design seems very nice indeed - and the TX should be fairly easy to build as well. There are two different versions - one for SW and one for MW. I may ask the people at FRN for permission to print the design in a future edition of Interference - if anyone of you out there is interested!

Source: FRN (www.frn.net)

Radio Argus

This widely known London-based pirate seems to be fairly active at the moment with all sorts of interesting tests. A number of frequencies have been tried out - apart from the regular 1125 kHz spot, 1566, 1630 and many other channels have been tried as well. They have apparently also tried out longwave, something which is quite amazing. They plan to settle down on 270 kHz. (Radio Delmare from The Netherlands has also tried LW recently, it seems.) The transmitter (or perhaps rather transmitters) appear to be transistorized QRP (well, almost) rigs, something which I believe is quite unusual for mediumwave-stations.

Source: Radio Argus/DPRS

Britain's Better Music Station and Ozone

This (these) excellent British broadcaster(s) had in mid-November almost settled down both in frequencies and times. And the schedule is: Sunday morning from 0800 UTC on 6198 or 6208 and Sunday evening from 1600 UTC on 5794v. They also have plans for 41m, which sounds like a very good idea indeed.

Source: SRS News

DPRS update

Derek has just issued a new edition of his excellent list of currently active Dutch mediumwave-pirates. An important change will take place in the next edition: The December list and all future editions will contain no post box addresses of pirates. The reason for this is that some Dutch pirates have received some rather strange reports recently - reports without proper programme-details, and some of them even obvious cases of prank. Some pirates have accidentally sent out QSLs for such false or dubious reports. So now people will have to actually *listen* to the pirates to get their address. The list costs £1, \$1 or 2 IRCs. - Or a few large white stickers! (A little inside joke there...) Address: 12 Dorman Road, Preston, PR2 6AS, ENGLAND. Another piece of information in relation to the Dutch pirates: Some of the stations that make international broadcasts (Baro etc.) now require minimum 20 minutes of programme details for a report to be verified. Some of the QSO-stations require tape recordings!

Sources: DPRS and Banscan

The Farmers

have been visited by the authorities on numerous occasions recently. In July (I think) they returned to the airwaves just a few hours after such a visit. And on Sunday the 6th of September they were visited once again. This time they were forced to destroy the transmitter under the supervision of the police and people from the Dutch PTT. But just two hours later they were back on air with the same equipment! So it didn't take them long to throw the TX together again! A DXer noted this rather funny comment from the Farmers: «We are back on the air after the PTT visit - this is not a problem at the moment!» Well, what then would be a problem for these mad people? The Farmers are on air every Sunday with a 1kW transmitter (though they are capable of putting out some 10kW!).

Source: SRS News #37 and 39

Giovanni Bellabarba

is the name of an Italian DXer who keeps sending prank reception reports to all sorts of stations, including pirates. If you've got access to the Internet, you can read

everything about the case there. Mr. Bellabarba has made the pirate DX community very angry indeed. Even a pirate station has been set up solely to promote the extinction of poor Giovanni (KGB Radio - Kill Giovanni Bellabarba Radio!).

Sources: SRS News and Martin Schöeh's home-page on the Internet

Hmmm, well who cares if this screwed individual sends out fake reports? Surely this is something which only matters to you screwed DXers out there (yes, you're all equally screwed!). If some stations accidentally send out QSLs to people who haven't really heard them, then why should that bother *you*? I really can't see the point in spending time and efforts making inquiries and even web-pages (!) about this silly subject. Whether a report is prank or genuine doesn't really matter, does it? What really matters is a real *audience* - people who don't just send a silly QSL request, but valuable programme feedback. What's in this silly QSL business to you? You're mad! (But don't worry: I've got nothing against mad people! HI.)

Q.R. Emerson

Radio Gunsmoke

has started announcing a special code during his broadcasts. The listeners have to include this code in their reports if they wish to get a QSL. Mr. Gunsmoke is tired of no-detail and even fake reports. See more comments under «DPRS» and «Giovanni Bellabarba»... Gunsmoke's address is c/o DPRS.

Source: SRS News

International Music Radio

This Swiss station has been very active recently using different frequencies on 76, 51, 48 and 41m. IMR is one of those very few stations that don't just transmit on those «fixed» pirate slots - i.e. Saturday night and Sunday morning. Check 5815 USB around 1900 UTC on any day of the week. IMR's programmes are always nice to listen to. I appreciate DJ Yves' «chaotic» and spontaneous style.

Source: SRS News

Offshore stuff

A strange email-message was received via SRS News recently. Apparently, there were plans to set up a special event offshore-station in mid-October to reminisce the famous Radio Mersur that used to broadcast off the Danish coast in the late 50ies. The broadcasts were to take place from a ship in the North Sea on such frequencies as 279, 1566 and 6210 kHz. No-one heard it, however. I assume that it was just a little anorakish joke?

Source: SRS News

Radio Pandora

Steve St.John says that his TX site keeps flooding over during heavy rainfalls. The soggy ground may be one reason why he is heard so well across Europe, he suggests.

Pirate Connection will be back. True!

Stefan announced the next edition to be published in September. But that's quite a while ago. And I haven't received anything so far... But I sure look forward to receiving it - it's always a great read. If you haven't seen a copy of this great zine, send for a sample copy - which costs 4 IRCs. The address is P.O.Box 4580, 203 20 Malmö, SWEDEN.

SWRS - Short Wave Relay Service

This station (presumably broadcasting from southern Europe??) are pioneering the pirate scene with their highly innovative use of frequencies. The schedule, as announced in their email-message of 15th of October, is the following: Every 1st weekend of the month on 11470 and 21450 kHz from site B and every 3rd weekend of the month on 6195/6280 (or 21450), 7590 and 11470 kHz from site A. All frequencies USB, I believe. The times seem to be approximately 0600-1200 UTC on Saturdays and Sundays. Other times are possible as well. Address: Wuppertal drop. STOP PRESS: By mid-November they've also introduced a service on 76m. And they also seem to have a site C. Site C is located in Central Europe, but is only used occasionally.

Source: SWRS

US shortwave pirates raided

In a press release (to be found on their web-site) dated the 9th of November, the FCC made public the closure of four shortwave pirate stations - all active on 6955 kHz. The stations were located in Tewksbury (MA), Glendale Heights (Illinois), Katy (Texas) and Sierra Madre (CA).

Source: FCC web site

US Pirate Activity

Because of the raids mentioned, 6955 has been very quiet lately. An American DXer, writing in SRS News, even urged European pirates to transmit on 6955 to give the American listeners at least *something* to listen to...

There have been speculations in the FRN Grapevine and also in SRS News that the FCC together with Canadian authorities are planning a major offensive against the SW-pirates in the two countries. Rumours have it that the FCC and their Canadian counterparts will monitor 6955 kHz over some months and then suddenly raid all the stations simultaneously. Whether or not there is anything in these rumours, one thing is for sure: The American pirates will keep a very low profile in months to come.

Sources: SRS News and various postings on the FRN site

PIRATE OPERATIONS ON SHORTWAVE - THE MANY ERRORS THAT YOU CAN MAKE

James Maxwell shares with the readers some of his experiences during a year or so of (occasional) broadcasting

INTRODUCTION

Many of you will probably already be pirate operators, and the following article is probably of little use to you. It is intended for people who would like to set up their own station, but who don't know if they have all the needed knowledge. Nevertheless, many of you experienced pirates out there will probably find some of the content of interest (and honestly: quite a few pirates have a lot to learn - judging from all the crap sounding signals heard on the pirate bands!).

Let me point out right from the start that I am by no means an expert in this field. I'm not going to tell you how to build a transmitter (because I know very little about that), nor am I going to give you a lecture about other highly technical issues, such as how to build extremely advanced antennas etc... Read some in-depth book about radio electronics before setting up your station!

Let's assume that you already have a transmitter and the technical knowledge to put a transmitter on air. The question is: How do you get across on the radio with your programming? How should the programme be recorded? What kind of studio equipment do you need? What sorts of audio processing gear is needed? How do you modulate your transmitter so that it sounds decent? I will also include some general comments about locations, antennae, and a few other practical issues.

THE AUDIO BIT

What should a decent pirate studio consist of? Clearly the most important component of a good studio is the *mixer*. The mixer doesn't have to be at all advanced and the many features offered on some of the disco-mixers on the market are of course not necessary. Get yourself a simple - and *cheap* one! Three channels (i.e. three faders) should be sufficient, although even more is to be preferred.

Other important features of a pirate studio include: a *microphone* (if you're a hi-fi freak, get an extremely expensive one, if you're just a pirate enthusiast who wants to get his message across on shortwave, buy the cheapest one you can get!) and at least *two sources of music* (e.g. two CD-players) - don't try to get by with just one, it'd be too awkward.

There is a lot of things that could be said about the building of a studio, but I shall not do that here. However, one little piece of advice is: get to «know» the studio before you record the first programme. It is necessary: to have the right feeling with the equipment. I never trained much before recording my first programme, and, chr, it turned out no good.

If you want to do live broadcasts, you must make sure that all your audio equipment can handle a bit of RF. My mixer doesn't like RF at all - no matter how low the power. All I get is an awful howling RF feedback.

Let's assume that you prefer to make your programmes on tape - that's the only thing I've tried so far and thus the only possibility that I can comment on! Now, the question is: How do you transfer the output from your audio mixer to a tape? First of all, you do of course need a *good cassette recorder*. Don't be afraid to spend a bit of money on this piece of equipment, because it's probably one of the most critical components in the audio path. I use a proper cassette deck from Denon which works quite nicely.

Next, I would recommend the use of a *compressor* between the mixer and the cassette recorder. A compressor does, basically, two things: It amplifies low level parts and attenuate high level parts - thus giving a more steady stream of audio. This will improve the modulation level of your AM signal - you will sound much louder, and low level sections of your programme won't be lost in tape hiss and atmospheric crashes! The use of a compressor also makes the DJ's voice more powerful and professional-sounding. True! How much compression do you need, then? Most of the experts say that a 2:1 ratio is good. But I don't know what that means! My compressor is a bit strange, it doesn't compress at a steady rate all the time, and I therefore cannot know if it's any near to 2:1... The compression of my compressor depends on the audio level which the compressor is fed with. I usually compress my programme at such a rate that it is *clearly audible* (but don't use so high compression that it sounds like the «clippings» used by some radio hams!). Many audio mixers have built-in 2:1 compressor units. I haven't checked out any of these. They're probably OK.

The next piece of audio processing equipment that you need is an *equalizer*. You will soon discover, if you monitor your modulated AM signal, that the audio sounds «dark» and muffled compared to the legal broadcasters. In most cases a slight boost in treble is needed to make the audio clearer. But don't boost the treble too much, and don't boost the *highest* audio frequencies. The highest audio frequencies won't be audible anyway on your AM carrier, no matter how much you boost them. However, they *will* be audible virtually anywhere else on the band - this phenomenon is known as splatter, and the worst thing that a pirate can do is to cause splatter. You probably won't do much harm to legal services, but fellow pirates (on a crowded 48 meter band, for example) will suffer quite a lot. I think perhaps that the splatter caused by the notorious Farmers is due to too much treble, but I am not sure. - So, which audio

IS THERE ANYONE YOU RECKON SHOULD RECEIVE THIS MAGAZINE? SEND US HIS OR HER NAME AND ADDRESS AND WE'LL SEND A SAMPLE COPY TO THAT PERSON.

THE ADDRESS IS

C/O 64 Brighton Road, Leicester, LE5 0HA, ENGLAND.

AND THE EMAIL-ADDRESS LOOKS LIKE THIS:

qremerson@hotmail.com

frequencies do need a boost? I usually boost a narrow band of frequencies around 6 kHz, which seems to work quite fine.

You can learn quite a bit about AM modulation and how to make it sound right by operating your transmitter on a dummy load and monitoring your signal while trying out various equalizer-settings and rates of compression. If possible, it is always recommendable to listen on several receivers, as the audio output of many receivers can be quite different. *You should spend a lot of time testing on a dummy load and get to know the transmitter before you attach an antenna!*

OK, so now you've recorded the programme, and the content of the tape - i.e. already processed audio - can quite easily be used to modulate the transmitter with. I use a ham transceiver, and the audio is simply fed into the microphone socket. If your TX site isn't your home, and especially if you broadcast from a very remote site, you need a small and handy cassette player. *A walkman type of player will do nicely.* Be extremely cautious as to what kind of cassette player you use, because this is another very critical link in the audio path. Some cassette players sound very bad! For more than a year I used one that gave too much treble and that - it seemed - attenuated the bass. The result was not so good. But I have now invested in a neat little walkman. Walkmans tend to have extremely good audio quality. - And they also tend to be RF proof, so you don't have to worry about nasty RF feedback. When talking about feedback, one extremely important advice is that you use a shielded audio cable between the cassette player and the TX. Also remember that the «screen» (i.e. the outer lead) of the cable should be connected to the negative pole of both the microphone input of the TX and of the output socket of the cassette player. If you make any error here, the result will almost certainly be: squealing RF feedback!

One little device that I only recently have brought into use, but that is *no doubt very important*, is the *audio limiter*. The limiter resembles the compressor, but it is used for a totally different purpose. Whilst the compressor is used to make the audio louder and steadier, the limiter is used to keep the audio under a certain pre-set level. That is, if the audio exceeds that level, it is automatically reduced to the pre-set maximum level. This is extremely important when modulating a radio signal, whether it is FM, AM or SSB. It is necessary to keep the audio level under a certain level, because otherwise the signal will be *overmodulated*. Overmodulated signals (often heard in the Dutch MW pirate band...) do not sound at all good, and they may also cause splatter and interference on adjacent frequencies. So it is at all cost necessary to avoid overmodulation!

If you don't use a limiter, you must make sure that the audio level into the transmitter is *reassuringly* below the overmodulation level, so that the signal isn't overmodulated whenever there's a loud sound. In other words: the setting of the modulation on your transmitter must be so low that even the loudest parts of the programme don't cause overmodulation!

All this is very awkward, the most convenient way to get by is to use a limiter. A limiter can naturally be used *while recording the programme*, i.e. it can be installed in the audio path between the mixer and the tape deck. But I haven't yet come across any low cost limiter.

nor have I seen any construction plans on how to make one. However, most modern-type walkmans have a built-in audio limiting system (AVLS), so by using this function on your walkman you can quite effectively limit the audio *while modulating the transmitter*. So the conclusion is: get a good walkman!

A FEW THINGS ABOUT THE SET-UP AT THE TX SITE

I shall not go into great detail about every possible way of doing the actual broadcasting. I have, as I said, just made taped programmes so far, and most of them have been transmit from remote locations. If you're thinking of doing the same, i.e. broadcast from outside, e.g. from a forest, then here are a few advices:

It is easy enough to broadcast from remote sites if you have access to a car, but if you, as I, don't have a driver's license (or simply can't afford a car!), it does become a bit more awkward. I have to walk - or cycle - some four or five kilometres to get to my TX site. (I prefer walking rather than cycling, because it's mostly uphill, and I'm in a terrible physical shape. I'm afraid. Having to drag a bicycle with me makes the trip *so much more awful!*) One thing which is of utmost importance under such circumstances is *not to use too heavy equipment*. A small «grenade»-type of transmitter is ideal of course, but even a ham transceiver is fairly easy to carry along over some distance. Valve-type of transmitters with huge transformers etc. are probably not ideal! The most awkward piece of gear to drag along is the battery. You will need a relatively small accumulator (20-25 Ah is probably the very limit), and it *must* be «maintenance-free», i.e. it must be 100% sealed and tight. - You don't want acid spills in your rucksack, do you? Maintenance-free accumulators are *expensive*, but necessary!

Yes, I load all the equipment into a huge rucksack - it is important to use one that is designed for long foot-journeys, i.e. one which is designed so that the content feels a lot lighter than it actually is! Mind you, my accumulator weighs 8 kg, and how it is carried is of great importance - the battery must of course be in the bottom of the rucksack - and it should be as low as possible relative to your body!

Before you go to do the broadcast, make sure that you have loaded all necessary equipment into the rucksack. It is very easy to forget, say, a small lead - and all leads are extremely important of course! *Make a list of the things you need at the site and make sure you've got it all before you go.*

If your back can handle it, it is always wise to bring something to eat and drink. *A nice thermos of hot water, some tea-bags and a cup are highly recommended!*

IS IT POSSIBLE TO BROADCAST FROM A FOREST IF IT RAINS?

Oh yes, no doubt. It only depends on your enthusiasm and stubbornness. Bring some huge plastic bags to cover the equipment with - and wear a rain-coat.

WHAT ABOUT THE ANTENNA?

I know I said I wasn't going to give a lecture about antennas, but a few things need to be said. The simplest, yet one of the most effective, antennae that you can make, is the *dipole*. Many pirates use just a random piece of wire and an antenna tuner, *but this is not good enough!* Most of these stations put out lousy signals. OK, you may be able to *receive* quite well on such an antenna, but it is not suitable for broadcasting! The stations that use random wires think they have such an extremely efficient antenna system since the SWR is 1:1, but this is of course not the case. So Ladies and Gentlemen: *snick to the dipole*. (If you're smart and knowledgeable enough, there are lots of other interesting possibilities about, but I shall not mention these here! *Read a book about HF antennas.*)

So, you've made a dipole - *is an antenna tuner necessary?* If you use a valve-type of transmitter, you can get by very well without a tuner, I believe. If you use a home-brew transistorized rig, then a tuner isn't necessary.

I guess, but you must make sure that the SWR doesn't get too high - BE KIND TO THE OUTPUT TRANSISTORS! If you use a ham rig, then a tuner is recommended. There is usually no risk of blowing the PA transistors when using a dipole antenna cut for the band you're transmitting on - BUT: Many transceivers have a built-in heat-resistor that automatically reduces the output power when the SWR gets too high. My transceiver starts reducing the power even if the SWR is just slightly deviant from 1:1. *A tuner is therefore needed to get the maximum output out of the TX.*

I had some problems with this the first couple of months I was active. I did use a tuner, but the meter on the tuner showed slightly wrong readings, so that when the meter showed SWR 1:1, the SWR was in fact 1:2! And the output power was therefore reduced to about one forth of the possible power! I didn't realize this before I borrowed a tuner of a friend of mine (the notorious Big Viking!). So if you use a ham transceiver - make sure that the SWR is very close to 1:1!

HOW DO YOU MODULATE THE AM SIGNAL OF YOUR AMATEUR RADIO TRANSCEIVER?

This is quite simple: First, attach the audio source to the microphone input of the rig. Then turn on the transceiver - preferably by means of the PTT button. Then set the power of the AM carrier to *one fourth of the maximum available power for SSB*. My transceiver gives 100 watts

in SSB, the AM power should thus be 25 watts. Turn on the cassette player, and adjust the microphone gain (i.e. the audio level on the TX) until you notice a slight deflection of the needle of the transceiver's built-in power meter. Listen to yourself on a cheap (but decent) radio - and increase the microphone level till the audio becomes distorted. Then turn mic-gain down again - till the audio sounds clear. If you don't use a limiter, it is necessary to reduce the mic gain even a bit more.

The audio from the cassette player should be at a *low level*. That is, don't use high level «line-out» sockets - but use the *headphone socket* and reduce the output to a *low level*. All this should of course be done before you set the mic-gain on the transceiver.

HOW TO FIND A SITE

I shall not tell you about all possible and impossible sites that have been or may be used for pirate broadcasting, but I do have some comments based on own experience:

1) BROADCASTS FROM A FOREST. There are at least *three criteria* that you have to bear in mind

when searching for a site in a forest: First, it must be relatively easy to get there (my site doesn't quite satisfy that criterion, I'm afraid). Second, it must be possible to hang up an antenna there. Two tall trees within a certain distance from each other must be found, preferably two firs with branches almost down to the ground, because *these are easy to climb* (I'm no good at throwing, so I have to climb, something which I am quite good at, if I must say it myself). It must be possible to hang up a dipole antenna between these trees, and the antenna should (preferably) touch NO OTHER TREES.

The third criterion is also important: *There must not be many nosy people around*. If you, like most of those dreadfully conservative shortwave pirates, decide to broadcast on a Sunday morning / afternoon, you should remember that this isn't just the time of the week most preferred for pirate radio activity, *it is also the very slot when people go for a stroll in their local forest!*

It is very difficult to find a site which satisfies all these demands. You should be prepared to spend a lot of time searching for a good QTH.

2) BROADCASTS FROM AT HOME. Such broadcasts are not advised at daytime in countries where the authorities are likely to try to trace your signal (e.g. Germany). Another thing you should remember is the possibility of *RF interference* on your neighbour's TV set, hi-fi-system etc. I had an unpleasant experience this summer, when I was home at my parents' place - and this was during the World Football Championship in France. Yes, I actually ruined - without knowing it of course - my neighbours' reception of a *great lot* of those chr. important games. And the father in this particular family is a football fanatic, and, chr, he became rather furious - and

he soon discovered that I was the guilty one... Luckily, Radio Maxwell - the broadcast station - was not the reason, so he hadn't heard Bob Dylan or REM on his telly. However, I'm also a bit active in the 11 meter band - using high power on SSB. And these higher SW frequencies are a lot more likely to cause TVI than, say, a signal on 76 or 48m. So even though you've been broadcasting quite happily for years from your home - on conventional pirate bands such as 3.9, 6.2 and 7.4 MHz - don't feel safe if you move upwards in frequency (taking advantage of the raising sunspot number) - you might get an unpleasant surprise from one of your neighbours!

CONCLUDING REMARKS

Let me remind you that this little article is not intended as a complete Do-It-Yourself manual to pirate radio. It is just a little selection of my own experiences, errors and

discoveries after a year or so on the air. If you seriously consider starting your own little pirate-station (something which you really should - GO AHEAD!) - you need to acquire a bit of knowledge about radio electronics, antennae, audio technique etc. You also need to be a knowledgeable pirate listener - you need to know when to broadcast and on which frequencies! I wouldn't advise a complete beginner to set up a station (Oh, listen to that mean old man!).

It is highly recommended that you get yourself an AMATEUR RADIO LICENSE - yes - I know that this may sound offensive to some of you, but most of the knowledge required for radio hams (except the morse stuff) is very relevant for the pirate. Of course, you don't have to actually take the test, but make sure that you learn (at least partially) the ham radio curriculum!

OK, have fun!

HALF THE FUN

Written by Q.R. Emerson

In a recent Media Network programme Diana Janssen was talking about pirate radio, and she warned everyone that pirate radio is strictly illegal, and that the authorities may track you down with their highly sophisticated direction finding equipment. However, she noted, many of the pirate ops that she and Jonathan had been speaking to, thought of the cat-and-mouse-chase with the authorities as half the fun with pirate radio. Well, I guess there's something right about that. I guess some pirate ops are into this crazy hobby because of the excitement. So that's why *Interference* will take a closer look at this side of the hobby - the cat-and-mouse bit.

Very few pirate operators know much about what the authorities do - and what they are capable of doing - to trace down illegal shortwave signals. As a listener I haven't got a clue! Do the telecommunications authorities in the various countries actually monitor the bands (just imagine - a DTI officer could be listening to *your* show!) - or do they mainly take action as a result of complaints? How is the DF (Direction Finding) bit actually performed? Surely there must be towers placed on various spots across the country to gauge the approximate direction of the illegal signals. What sorts of antennas and other equipment do these stations have? Where are the stations located? How precise readings can such «remote» direction finding measures produce? What other purposes do these monitoring stations have? To find the exact location of a pirate, mobile DF equipment must be brought into use - what sort of equipment is used at this stage? Do the DF people always find the station they're looking for? Is there any cooperation between the frequency management bodies of the various countries? - Well surely there must be - the question should be: How does this cooperation work?

It would be interesting if you the reader could do some research about the procedures used by the telecommunications authorities in *your* country (be it inside or outside Europe). Do they monitor the bands? Where are the DF stations located? Is there a highly decentralized network of DF-units spread across the country ready to trace down a pirate in no-time?

Is it just me or is this in fact *interesting*? I tend to think of these questions as awfully fascinating!

More questions: In a recent posting on the FRN Grapevine (Internet-site), Dr. DX said that it was easier to trace a signal that's vertically polarized than one which is horizontal. I guess this makes sense since the groundwave coverage of a vertical antenna by far exceeds that of a horizontal antenna. Is this something that the pirates take into consideration? When considering the coverage of the groundwave - is it then perhaps safer to operate on the higher frequencies - such as 15 or 21 MHz?

All sorts of comments wanted.

NOW IT IS TIME TO MOVE UPWARDS

Written by James Maxwell

A few years ago, at the height of his career as a pirate radio know-it-all, the Pirate Chat editor spent much time and efforts trying to persuade the pirates to move to 3 MHz, since the domestic coverage on 6 MHz was so poor. This was at the very bottom of the sunspot cycle, and no doubt - the PC oracle was right! During periods of low sunspot number the signals on 6 MHz tend to travel far, and a pirate wanting to serve a domestic audience should try a lower frequency.

Now things are different. The sunspot number is on its way up, and it is in fact already quite high. Both the flux and the sunspot number tend to be around or over 100 these days, and surely that must be acceptable. The consequences of a rising sunspot number are many. One is that 6 MHz (and perhaps even 7 MHz at times) becomes usable for short-range (day-time) broadcasting again. So if you still haven't followed Mr. PC's advice and moved to 3.9 MHz, then don't worry. You can safely stay on 6 MHz! HI.

Another consequence of a raising sunspot-number is that the higher portions of the shortwave spectrum becomes usable for truly world-wide transmission. This is a possibility which is rarely exploited by the pirates. One recent exception is the Short Wave Realy Service that has tested out 21 MHz, and as far as I've heard, they've made it very well across to the Americas in the afternoon hours.

There are at least four bands that an innovative pirate should consider trying out. These are 13, 15, 21 and 25/26 MHz. In the following few paragraphs I will make a few comments about the three bands mentioned.

13 MHz

SWRS have been pioneering this band as well. 13960 has been tried. This band is used by various maritime services. Does anyone know which frequencies are «safe»? (Does anyone have a Klingenuß?) I know very little about this band. And I very rarely monitor the hams on 20m, so I don't know how the propagation is. But 20m is often considered as *the* DX band...

15 MHz

How do you find a clear frequency on this band? Seems difficult. But not impossible?

21 MHz

This band is extremely suitable for long distance broadcasts. If you monitor the 15 meter ham band (21000-21450 kHz), you will often hear some very

fine DX. Stations from across the Atlantic can be extremely strong (even on low power) in the afternoon and evening hours. There are also two interesting low-powered broadcast stations on 21 MHz that serve very well as indicators on how good the conditions are - these are HCJB from Ecuador on 21455 USB (using a kW) and RFPI from Costa Rica. I'm not sure which frequency the latter station uses right now. They tend to jump a lot... It shouldn't be a problem to find a clear frequency on this band - it seems to be half empty at any time of the day. The BC band is between 21450 and 21850, and I've never noted any utility-rubbish on these frequencies (I think). SWRS has, as I mentioned, tried this band, but I'm not sure if their choice of frequency was the very best: 21450 kHz is on the very border to the ham band, and unless you want a huge ham-audience, this frequency should probably be avoided.

25 and 26 MHz

Most DXers know that there is a broadcast band just about here, but they rarely check it - simply because there are NO BROADCASTERS TO BE HEARD! The entire BC band between 25670 and 26100 is empty! (Except for the odd Italian powerhouse CBER...) This band should be very suitable for broadcasts *within* Europe during the summer (taking advantage of the e-skip) and for *world-wide* broadcasting in the winter. Of course you'll have to *listen* before you go on air to see if the band really propagates - good indicators would be the ham bands of 12 and 10 metres (i.e. 24890-24990 and 28000-29700 kHz). A third (and probably the best) indicator is naturally the well-known triple five on 27 MHz... Reports from the US say that pirate activity has taken place on 26 MHz over there recently - why don't the Euros follow this example?

If you decide to use this band, you should stay *within* the broadcast band mentioned, and it's probably a good idea to stick to frequencies below 26000 - the reason for this is that the frequencies between 26000 and 28000 are widely used by illegal SSB (CB) stations. The radios used by these operators tend to cover the range from 26000 and up. Of course, if you want a large audience, it might be a good idea to broadcast above 26000, but on the other hand you're very likely to suffer from severe QRM by all those nuts.

I really can't see why 25 MHz isn't more widely used by pirate broadcasters. This band has two advantages: you can easily get a *cheap*

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transceiver for this band (i.e. one that covers 26000 or so and up, but many of these rigs can be modified - by changing an IC - to work below 26 MHz as well) and the *antennas* demanded are very small. OK, so you haven't got enough space to be a 48 or 76 meter band operator - well why don't you try 25 MHz? A vertical CB antenna should work superbly, and a little dipole should also be fine. Perhaps a horizontal antenna, e.g. a dipole, is the best, as you won't get as far on the groundwave - and you thus reduce the risk of being caught! But then again you'll skip much farther on a vertical antenna. Hmm. Setting up a station on 25 MHz should be easy and cheap. Imagine - anyone with a little President Jackson and a CB antenna can run a world wide broadcaster!

One little reminder: Operations on 11m tend to cause TVI on neighbours' TV-sets. You're warned!

Finally one suggestion: You listeners out there should support the pirates not just by listening to *them*, but also by listening for *blank spaces on the dial*. Many pirates don't have the time to monitor the bands on a regular basis, and I guess this can be one of the reasons why 6 MHz is so widely used. - The pirates simply don't know where else to broadcast. *Interference* hereby takes the initiative to launch a bi-monthly list of « INTERESTING FREQUENCIES (AND TIMES) THAT SHOULD BE TRIED OUT ». Contributions wanted! (Contributions from outside Europe are of great interest!)

OK, that's just about it for this time!

I would strongly urge YOU to send us news and information concerning illegal radio. All sorts of contributions are wanted.

Here are some of my ideas of what sort of information «Interference» COULD print in the future (but in order to make that possible, SOMEBODY has to WRITE the articles and columns mentioned):

- A review of the illegal packet radio networks on 45 and 11 metres
 - News from the Dutch mediumwave pirate scene
- Lists of interesting frequencies where illegal and covert transmissions (other than broadcasts) take place (activity outside Europe especially interesting!)
 - Comic strips. Are you good at drawing? Send us your work!
 - Technical tips and articles
- Readers' letters (for discussions and exchange of information between the DXers)
 - News from the FM pirate scene (UK and elsewhere)
 - News about American pirate radio (shortwave and «micro-radio»)
- Utility-transmissions in the Free Radio bands. Which frequencies are best avoided?
 - Articles about particular stations
- Pirates tend to play a lot of music. Perhaps someone could write a column about the music featured on the pirates?
- I read an interesting article on the Internet recently about some people in Dallas who use CB radio as a form of performance art (!). Does anyone have anything interesting to say about «alternative» use of radio transmitters?
 - What about pirate TV - is anyone into that?
- Historical articles. What's the history behind the Dutch «middengolf»-scene? (It has apparently existed since the 1920ies!) Does anyone remember the first years of pirate activity on 48m (the early 70ies, I believe)? What was it like? What about shortwave piracy before that? (I read an interesting article recently about a Swedish pirate that was active in the 80 meter ham band in the early 50ies - to the great annoyance of the hams and to the great delight of the listeners...)

Of course, these are just some of MY ideas - feel free to write about whatever you like! It doesn't have to be a long, well-written article - a few lines in form of a short notice is also appreciated! So

WRITE! And send the lot to

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